

VI. Scatter plots and least-squares lines. *★ Use your calculator!*

The table below gives sample ages and heights of several children. Let x represent the age and y the height.

Age	5	9	11	13	6	8	5	12
Height	44"	55"	60"	62"	42"	54"	40"	70"

- Find an equation for the least-squares line of the data. $y = 3.2x + 26.0$
- Give the correlation coefficient. 0.94 *★ close to 1*
- Does the equation do a good job representing the data? *yes - the correlation is a strong positive*
- Use the equation to estimate the height of a 10 year old. $y = 3.2(10) + 26$
 $y = 32 + 26$
 $58"$ *It follows the points closely*

VII. Solve for x .

1. $3(4x - 8) = 12$

$12x - 24 = 12$

$12x = 36$

$x = 3$

2. $\frac{1}{2}x - 6 = 2x$

$\frac{1}{2}x - 2x = 6$

$-1.5x = 6$

$x = 6 / -1.5$

$x = -4$

3. $11 - 4x \geq 39$

$11 - 39 \geq 4x$

$-28 \geq 4x$

$-7 \geq x$

$x \leq -7$ or

$-7 \geq x$

4. $2x - 7 < 13 - 3x$

$2x + 3x < 13 + 7$

$5x < 20$

$x < 4$

★ 5. $|2x - 3| \leq 11$

$2x - 3 \leq 11$

$2x \leq 14$

$x \leq 7$

$2x - 3 \geq -11$

$2x \geq -8$

$x \geq -4$

6. $|4x - 8| > 12$ *★ Watch the $>$, $<$*

$4x - 8 > 12$

$4x > 20$

$x > 5$

$4x - 8 < -12$

$4x < -4$

$x < -1$

VIII. Solve for the indicated letter.

1. $A = \frac{3c}{3c}$, for f

$\frac{A}{3c} = f$

$\frac{A}{3c} = f$

2. $M = 5w + ac$, for c

$-5w - 5w$

$\frac{M - 5w}{a} = \frac{ac}{a}$

$c = \frac{M - 5w}{a}$

3. $R = \frac{5(a + c)}{5}$, for a

$\frac{R}{5} = \frac{a + c}{5}$

$\frac{R}{5} = \frac{a + c}{5}$

$\frac{R}{5} - a = c$

IX. Word Problems - Show all work!

- The cost of catering a banquet varies directly as the number of people who attend the banquet. If it costs \$3875 to cater a banquet that is attended by 250 people, write a direct-variation equation that gives the cost based on how many people.

$3875 = k \cdot 250$

$k = 3875 / 250 = 15.5$

$y = 15.5x$

- How much will it cost to cater a banquet that is attended by 400 people? $y = 15.5(400) = \$6200$

- A taxi company charges an initial fee of \$2 per ride, plus \$.50 for each mile. Write an equation that describes the relationship between cost, c , and miles, m .

$C = 0.50(m) + 2$

m	c
0	2
1	2.50
2	3

- The Castleville Company started in 1980 with 400 employees. Since then it has grown at a steady rate of 50 employees per year. Write a linear equation that models the number employees at the Castleville Company. How many employees were there in 1997? (17 years)

$y = 50x + 400$

$y = (50)(17) + 400$

$y = 850 + 400$

1250 employees

year	emp.
0 1980	400
1 1981	450
2 1982	500
3	550